

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number
WO 2005/059921 A1

(51) International Patent Classification⁷: **G11C 13/00**

(21) International Application Number:
PCT/JP2004/019291

(22) International Filing Date:
16 December 2004 (16.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-421374 18 December 2003 (18.12.2003) JP
2003-435501 26 December 2003 (26.12.2003) JP

(71) Applicant (for all designated States except US): **MAT-SUSHITA ELECTRIC INDUSTRIAL CO., LTD.**
[JP/JP]; 1006, Oaza Kadoma, Kadoma-shi, Osaka
5718501 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MURAOKA, Shun-saku. OSANO, Koichi. TAKAHASHI, Ken. SHIMOTASHIRO, Masafumi.**

(74) Agents: **MAEDA, Hiroshi** et al.; Osaka-marubeni Bldg.,
5-7, Hommachi 2-chome, Chuo-ku, Osaka-shi, Osaka
5410053 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

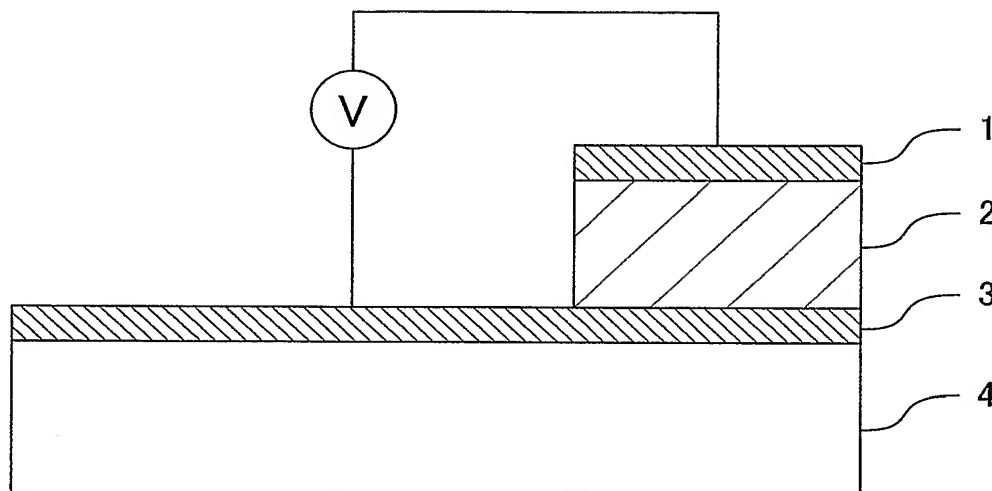
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: METHOD FOR INITIALIZING RESISTANCE-VARIABLE MATERIAL, MEMORY DEVICE CONTAINING A RESISTANCE-VARIABLE MATERIAL, AND METHOD FOR INITIALIZING NONVOLATILE MEMORY CIRCUIT INCLUDING VARIABLE RESISTOR



(57) Abstract: An initialization method of the present invention is a method for initializing a material (variable-resistance material) (2) whose resistance value increases/decreases according to the polarity of an applied electric pulse. An electric pulse having a first polarity is applied at least once between first and second electrodes (1, 3) connected to the variable-resistance material (2) such that the potential of the first electrode is higher than that of the second electrode.

WO 2005/059921 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.